



# BUILDING COMMISSIONING

## for better public buildings

### CASE STUDY

#### BEAVERTON SCHOOL BENEFITS FROM COMMISSIONING PROCESS



Sexton Mountain Elementary School in Beaverton, Oregon was commissioned after it was built.

"The issues identified in the commissioning report . . . provided the justification to move Sexton Mountain School up on the priority list for bond funding of repairs."

-Jerry Green  
Beaverton School District  
Administrator for Energy and Environment

#### COMMISSIONING QUICK FACTS

Building: Sexton Mountain Elementary  
Location: Beaverton, Oregon  
Completion date: Fall 1999  
Scope of project: Retro-commissioning  
Commissioning cost: \$11,044<sup>1</sup>  
First-year cost benefit: \$7,030<sup>2</sup>  
Annual energy savings: \$3,570<sup>3</sup>

<sup>1</sup> Commissioning providers fee only.

<sup>2</sup> Cost reduction or avoidance.

<sup>3</sup> Annual energy savings based on cost of electricity of \$0.0494/kWh and natural gas of \$0.755 /therm.

Sexton Mountain Elementary School in Beaverton, Oregon had a history of operational problems and above-average energy use for a 65,000 square-foot building. The Beaverton School District hired a third party commissioning provider to help them investigate the school's operational efficiency and energy use.

KeithlyWelsh, the commissioning provider, conducted a comprehensive retro-commissioning investigation of the roof, windows, walls, lighting, HVAC and controls, as well as an energy audit.

The commissioning report documented the severity and implications of the system problems and played an important role in getting a bond issue passed by the voters in November 2000.

The preliminary investigation included examination of project records maintenance records and interviews with the building's maintenance staff and staff who use the building. When the bond measure passed, the District was able to fund the capital improvements at Sexton Mountain two years earlier than originally planned. This accelerated repair is estimated to have saved \$2,075.

Of the 37 specific issues that the commissioning report identified, 11 were considered to be significant and impacted energy use and operational expenses. Some of the issues identified and corrected included broken and malfunctioning fans, inop-

#### BUILDING COMMISSIONING

Is a systematic and documented process of ensuring that the owner's operational needs are met, building systems perform efficiently, and building operators are properly trained.

over



*New windows replaced leaky windows at Sexton Mountain Elementary School.*

### COMMISSIONING BENEFITS

- Improved indoor air quality and thermal comfort
- Extended equipment life
- Improved operation of equipment
- Reduced maintenance
- Documented support for bond measure
- Energy savings

"The commissioning gave the School District an overall picture of the building and its issues which helped us prioritize what to focus on."

- Jerry Green

Beaverton School District

Administrator for Energy and Environment

erable dampers, malfunctioning heating coils units, and improperly set thermostats.

The commissioning report provided the school district with an overall picture that assisted them in setting priorities for projects. In addition, Beaverton School District is actively training staff to perform commissioning related tasks in-house. The maintenance staff gained considerable knowledge about building systems throughout the entire commissioning process.

The Beaverton School District was so pleased with the commissioning process at Sexton Mountain Elementary that it has now included commissioning on all new construction projects.

### LESSONS LEARNED

- Begin Commissioning early on in the design phase.
- Discuss the Commissioning process with all parties involved (contractors, facility people, etc.) to avoid surprises or resistance.
- Prioritize and correct identified issues based on the greatest energy savings.

### PROJECT PARTNERS

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